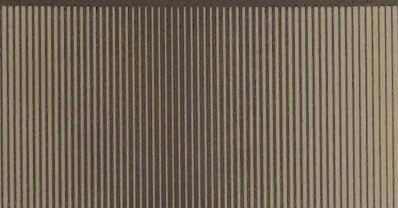
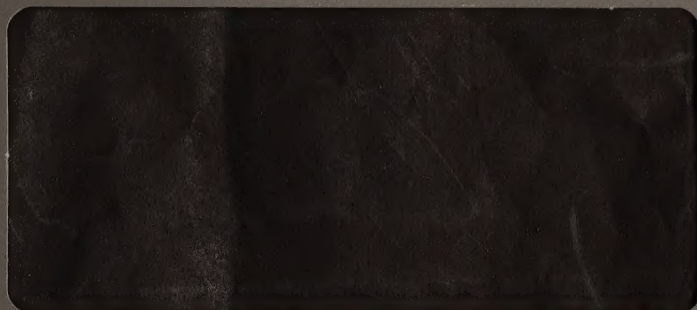




# Operator's Manual



**LeCroy**

*Innovators in Instrumentation*



ATTENTION

HIGH POWER CAMAC CRATE  
MODEL 1434A and 1434A MOD 100  
USER'S MANUAL

AC LINE VOLTAGE SHOULD BE CHECKED FOR  
SIGNIFICANT VOLTAGE DROPS IF UNIT IS TO  
OPERATE ABOVE 100 V AND SET AT 110 V AC. IF  
AC LINE VOLTAGE DROPS BELOW 100 V AC OR  
INCREASE ABOVE 110 V AC WHILE UNIT IS RUNNING  
ABOVE 100 V, CHANGE VOLTAGE SETTING ON  
TERMINAL BLOCK IN FAN TRAY TO 100 V AC OR  
110 V AC RESPECTIVELY.

SEE SOCKET IN BACK OF MANUAL FOR  
SCHEMATIC PARTS LIST AND ADDITIONAL DETAILS  
WITH ANY CHANGES TO MANUAL.

CAMAC MODULE SHOULD NOT BE INSERTED OR  
REMOVED WHILE POWER IS ON. DAMAGE MAY BE  
CAUSED BY MOMENTARY MISALIGNMENT OF  
CONTACTS.

ATTENTION

Revised  
Sept 1985



## A T T E N T I O N

BE SURE LINKS IN FAN TRAY ARE SET FOR CORRECT OPERATING AC VOLTAGE (SEE SECTION 4.3) AND THAT THE CORRECT FUSES ARE INSTALLED (SECTION 4.4).

AC LINE VOLTAGE SHOULD BE CHECKED FOR SIGNIFICANT VOLTAGE DROPS IF UNIT IS TO OPERATE ABOVE 500 W AND SET AT 110 V AC. IF AC LINE VOLTAGE DROPS BELOW 100 V AC OR INCREASE ABOVE 120 V AC WHILE UNIT IS RUNNING ABOVE 500 W, CHANGE VOLTAGE SETTING ON TERMINAL BLOCK IN FAN TRAY TO 100 V AC OR 120 V AC RESPECTIVELY.

SEE POCKET IN BACK OF MANUAL FOR SCHEMATICS, PARTS LIST AND ADDITIONAL ADDENDA WITH ANY CHANGES TO MANUAL.

CAMAC MODULES SHOULD NOT BE INSERTED OR REMOVED WHILE POWER IS ON. DAMAGE MAY BE CAUSED BY MOMENTARY MISALIGNMENT OF CONTACTS.

## A T T E N T I O N



## **GENERAL INFORMATION**

### **PURPOSE**

This manual is intended to provide instruction regarding the setup and operation of the covered instruments. In addition, it describes the theory of operation and presents other information regarding its functioning and application.

The Service Documentation should be consulted for the schematics, parts lists and other materials that apply to the specific version of the instrument as identified by its ECO number.

### **UNPACKING AND INSPECTION**

It is recommended that the shipment be thoroughly inspected immediately upon delivery. All material in the container should be checked against the enclosed Packing List and shortages reported promptly. If the shipment is damaged in any way, please notify the Customer Service Department or the local field service office. If the damage is due to mishandling during shipment, you may be requested to assist in contacting the carrier in filing a damage claim.

### **WARRANTY**

LeCroy warrants its instrument products to operate within specifications under normal use and service for a period of one year from the date of shipment. Component products, replacement parts, and repairs are warranted for 90 days. Software is thoroughly tested, but is supplied "as is" with no warranty of any kind covering detailed performance. Accessory products not manufactured by LeCroy are covered by the original equipment manufacturers warranty only.

In exercising this warranty, LeCroy will repair or, at its option, replace any product returned to the Customer Service Department or an authorized service facility within the warranty period, provided that the warrantor's examination discloses that the product is defective due to workmanship or materials and has not been caused by misuse, neglect, accident or abnormal conditions or operations.

The purchaser is responsible for the transportation and insurance charges arising from the return of products to the servicing facility. LeCroy will return all in-warranty products with transportation prepaid.

This warranty is in lieu of all other warranties, express or implied, including but not limited to any implied warranty of merchantability, fitness, or adequacy for any particular purpose or use. LeCroy shall not be liable for any special, incidental, or consequential damages, whether in contract, or otherwise.

### **PRODUCT ASSISTANCE**

Answers to questions concerning installation, calibration, and use of LeCroy equipment are available from the Customer

Services Department, 700 Chestnut Ridge Road, Chestnut Ridge, New York 10977-6499 (914) 578-6059, or your local field service office.

#### **MAINTENANCE AGREEMENTS**

LeCroy offers a selection of customer support service. For example, Blue Ribbon service provides guaranteed three-day turn around on repairs, a direct access number for product application assistance, yearly calibration and the addition of engineering improvements. Maintenance agreements provide extended warranty that allows the customer to budget maintenance costs after the initial warranty has expired. Other services such as installation, training, on-site repair, and addition of engineering improvements are available through specific Supplemental Support Agreements. Please contact the Customer Service Department or the local field service office for details.

#### **DOCUMENTATION DISCREPANCIES**

LeCroy is committed to providing state-of-the-art instrumentation and is continually refining and improving the performance of its products. While physical modifications can be implemented quite rapidly, the corrected documentation frequently requires more time to produce. Consequently, this manual may not agree in every detail with the accompanying product and the schematics in the Service Documentation. There may be small discrepancies in the values of components for the purposes of pulse shape, timing, offset, etc., and, occasionally, minor logic changes. Where any such inconsistencies exist, please be assured that the unit is correct and incorporates the most up-to-date circuitry.

#### **SOFTWARE LICENSING AGREEMENT**

Software products are licensed for a single machine. Under this license you may:

- Copy the software for backup or modification purposes in support of your use of the software on a single machine.
- Modify the software and/or merge it into another program for your use on a single machine.
- Transfer the software and the license to another party if the other party accepts the terms of this agreement and you relinquish all copies, whether in printed or machine readable form, including all modified or merged versions.

## TABLE OF CONTENTS

|                                                      | Page Number |
|------------------------------------------------------|-------------|
| 1 SPECIFICATIONS                                     |             |
| 1.1 Technical Data Sheet                             |             |
| 1.2 Additional Specifications of 1434A Subassemblies | 1-1         |
| 1.3 Model 1434A MOD 100                              |             |
| 2 OPERATING INSTRUCTIONS                             |             |
| 2.1 Installation and Output Monitoring               | 2-1         |
| 2.2 Overload and Short Circuit                       | 2-1         |
| 2.3 Overvoltage                                      | 2-1         |
| 2.4 Voltage Adjustment                               | 2-2         |
| 2.5 Thermal Overload                                 | 2-2         |
| 3 PRINCIPLES OF OPERATION                            |             |
| 3.1 General                                          | 3-1         |
| 3.2 Voltage Regulators $+6$ V                        | 3-2         |
| 3.3 Voltage Regulators $+24$ V                       | 3-4         |
| 3.4 Voltage Regulators $+12$ V                       | 3-4         |
| 3.5 Monitoring Circuits                              | 3-4         |
| 4 MAINTENANCE                                        |             |
| 4.1 Ordering of Parts                                | 4-1         |
| 4.2 Adjustments                                      | 4-1         |
| 4.3 Selecting the AC Supply Voltage                  | 4-1         |
| 4.4 $+6$ V Line Current Change                       | 4-2         |
| 4.5 Fuse Replacement                                 | 4-2         |
| 5 DRAWINGS IN REAR COVER                             |             |
| a. 1434A System Schematic                            |             |
| b. Dual 5 V Power Supply                             |             |
| c. 1434AF Wiring Diagram                             |             |
| d. 1434AF Meter Board                                |             |
| e. 1434AP Voltage Regulator Board                    |             |
| f. 1434AP Wiring Diagram                             |             |
| g. 1434AP-4P Positive Regulator Board                |             |
| h. 1434AP-4N Negative Regulator Board                |             |
| i. 1434A General Mechanical Dimensions               |             |
| 6. APPENDIX                                          |             |
| a. Application Notes:                                |             |
| AN22 - CAMAC Crate Cooling Considerations            |             |
| AN33 - Introduction to CAMAC                         |             |



# INSTRUMENT MAINFRAMES

## 13-BAY BENCHTOP/25-BAY RACKMOUNT

# LeCroy

### 1434A RACKMOUNT MAINFRAME 8013A/8013AGPIB BENCHTOP MAINFRAME



- 400/650 W Power Output
- Quality AC Line Regulation
- Self-Contained Cooling
- Thermal, Short Circuit and Over-Voltage Protection
- GPIB Compatible

## INSTRUMENT HOUSINGS FOR CAMAC PLUG-INS

LeCroy Models 8013A, 8013AGPIB, and 1434A Instrument Mainframes provide housing for LeCroy's plug-in instrument modules. The 8013A benchtop series mainframes accept instruments in combinations of up to 13 single-width plug-ins. The 1434A rackmount series can accommodate up to 25 instrument modules. Both single- and dual-width plug-ins can be accommodated, providing the versatility of a single or multi-instrument modular package. Hundreds of different instrumentation packages can be configured for custom applications by using LeCroy waveform digitizers, memories, pulse and function generators, amplifiers, attenuators, ADC's, time interval meters, counters, trigger generators, and even fiber optic links.

## FEATURES

**High Output Power**—650 W for 1434A, 400 W for 8013A

**Operates from Standard Line Voltage**—110 V AC or 220 V AC operation

**Versatile Modular Design**—Modularity allows the maximum performance for the application.

**Easy System Upgrading**—Modularity also allows easy upgrading to take advantage of technology.

**GPIB Compatible**—Programmed automation and control via GPIB interface option.

**Short Circuit Proof**—Instrument mainframes are current limited and contain overload detectors for automatic shutdown.

**Instrumentation Quality Regulation**—Line and load regulation for AC line changes and for load changes.

## FUNCTIONAL DESCRIPTION

Versatility, user customization, and expandability are the prime advantages of LeCroy mainframes. Many more functions than could be practically or economically combined in a single instrument are available by selecting the appropriate LeCroy instrument and accessory modules. This plug-in modular design permits the user to meet changing needs and allows for system upgrading with new instrument module releases from LeCroy.

LeCroy's low cost modular customization and easy upgrading concepts are enhanced by the Model 8901A GPIB interface option. This mainframe accessory (included in Model 8013AGPIB) provides an IEEE-488 Standard Interface to the Models 8013A and 1434A Instrument Mainframes. Thus, remote control, data transfer, and simple program instruction of LeCroy instrument modules can be achieved using the user's host controller. A system consisting of a LeCroy Controller (Model 6010), digitizer, and user supplied RS-232 terminal offers complete automation of many measurements.

Both instrument mainframes offer the standard  $\pm 6$  V and  $\pm 24$  V supplies for LeCroy and other standard CAMAC modules. The high power Model 1434A, with 650 W of continuous power, has  $\pm 6$  V outputs to supply a total of 90 A, with either the +6 V or -6 V supplies capable of 60 A via internal selection. In addition, the Model 1434A offers an optional  $\pm 12$  V supply to provide

up to 3 A for both +12 V and -12 V. A built-in digital multimeter on the front panel of the 1434A provides convenient monitoring of all voltage and current outputs.

LeCroy instrument mainframes operate from standard 50/60 Hz, 110/220 V AC power. Instrument quality line regulation, long term stability, and load regulation assure reliable trouble-free operation of inserted modules. Models 8013A and 1434A are current limited and have overload protection for short circuits. Automatic overtemperature sensing shuts down the 1434A supply in the event of a thermal overload and indicates a fault. The Model 8013A has the additional feature of a short term (16 msec) uninterruptible power supply to guard against brief power line interruptions.

These instrument mainframes have been designed for user convenience and serviceability. Low insertion force connectors and quality guides are used to ensure proper mechanical alignment and ease of module installation. The Model 1434A offers a servicing feature of in-rack accessibility to the power supply and fan assembly. The two instrument mainframes provide good air flow and ventilation through forced cooling by high capacity, quiet fans.

Both Models 8013A and 1434A Instrument Mainframes meet all requirements of the CAMAC Standard (IEEE-583), assuring unrestricted choice of modules from LeCroy or second-source CAMAC suppliers.

SPECIFICATIONS

Model 1434A  
HIGH POWER CAMAC MAINFRAME

**Module Capacity:** 23 single-width plus one dual-width controller.

**Dimensions:** 19" rackmount, 12¼" height, 22½" depth.

**Voltage Meter:** 3½ digit meter provides monitoring of all output currents and voltages. Accuracy ±1% of full scale voltage; ±2% of full scale current. Resolution better than 0.5%.

**Cooling:** Six high capacity fans.

NOTE: The Model 1434A must be mounted in such a way that the air circulation through the Crate is not impeded.

**Weight:** 47 lb. (21.5 kg)

Model 1434AP  
Power Supply included in the Model 1434A

CONDITIONS: Line voltage 110 V, transformer wired for 110 V, ambient temperature 25°C.

**POWER AVAILABLE**

**Total Power:** 650 W maximum ±6 V, ±12 V, ±24 V combined.

**Maximum output currents from:**

±6V Up to 60 A from either supply. 90 A maximum combined sum. Factory set: 45 A maximum from +6 V, 60 A maximum from -6 V. Reversible by user. See graph 1 for load conditions.

±24 V 6 A maximum each. Subtract current drawn by ±12 V load.

±12 V 3 A maximum each derived from ±24 V supply.

PERFORMANCE

**Ripple:** <2 mV RMS (10 kHz bandwidth), <5 mV peak-to-peak (50 MHz bandwidth).

**Regulation:** ±0.01% line or load (measured at the sense leads).

**Temperature Coefficient:** <100 ppm/°C.

**Long Term Stability:** <0.1%/24 hours at constant load and temperature. Measured after 1-hour warmup.

**Response Time:** Settles to within 1% of final value in less than 100 µsec for 10% to 100% load change.

**Tracking:** During turn-on all six output voltages rise together. Risetime 10 msec.

GENERAL

**Overload Protection:** All outputs are protected against overload by current limit circuit, factory set to 7% above maximum allowable output current; short circuit proof. All outputs switch off within 20 msec of detected overload.

**Overvoltage Protection:** All outputs are protected against transient overvoltages by high current transient suppressors. Any sustained overvoltage >1.5 V will turn off all outputs within 20 msec.

**Thermal Protection:** A thermal sensor shuts down the supply in the event of a thermal overload. A front-panel thermal overload light on the fan tray indicates an over-temperature condition in the power supply. Remote indication of an overload is provided via an open collector TTL signal on a front-panel mounted BNC connector.

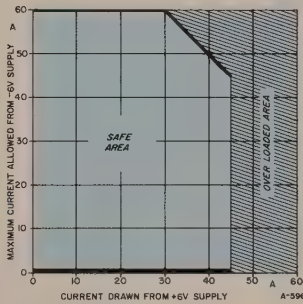
**Automatic Power Reset:** A jumper option in the fan tray activates a relay which automatically turns the crate back on when power is restored after an AC power failure related shutdown.

**Operating Range:** Full 650 W output from 0°C to 40°C ambient temperature. Derate at - 10 W/°C. above 40°C. Maximum ambient temperature 50°C. See graph 2.

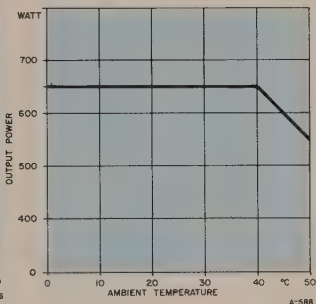
**Line Voltage:** Field Selectable: 100/110/120/200/220/240 V AC ±10%, 47 to 65 Hz. Factory set to 110 V. 220 V operation recommended if full output power is permanently needed.

**Line Current:** 18 A RMS at 110 V and full output power, 9 A RMS at 220 V.

**Weight:** 53 lb. (24.1 kg)



GRAPH 1



GRAPH 2

Model 8013A  
CAMAC BENCHTOP MAINFRAME

**Module Capacity:** 11 single-width plus one dual-width controller.

**Dimensions:** 14" H x 11.5" W x 18.7 " D

**Cooling:** Plug-in compartment thermally isolated from power supply. Two fans provide bottom to top positive airflow. Unit should be operated on a flat surface to prevent blockage of air inlets for fans.

POWER AVAILABLE

|        | +6 V | -6 V | +12 V | -12 V | +24 V | -24 V |
|--------|------|------|-------|-------|-------|-------|
| 8013A: | 23 A | 23 A | —     | —     | 2.5 A | 2.5 A |

**Total Power:** 400 W max, ±6, ±24 V combined, all supplies independent

**PERFORMANCE**

**Ripple:** <50 mV p-p (50 MHz bandwidth)

**Line Regulation:** ±0.5% for line changes within operating limits

**Load Regulation:** ±0.5% for no load to full load changes (±24 V) <±2% for no load to full load changes (±6 V)

**Temperature Coefficient:** <100 ppm/°C

**Long Term Stability:** <0.1%/8 hour constant load and temperature after 1 hour.

**Response Time:** Settles to within 1% of final value in less than 500 µsec for 50%-100% load change

(Continued)

## GENERAL

**Overload Protection:** Current limit circuit; short circuit proof. Outputs switch off within 20 msec of overload.

**Energy Storage Time:** 16 msec holdup after AC power loss.

**RFI:** Via power line interference filter. Conducted and radiated RFI significantly reduced.

**Operating Range:** 15°C to 35°C operating; -10°C to 50°C storage

**Input Voltage Requirements:** 85 to 135 V AC; 170 to 270 V AC, 47-65 Hz

**Weight:** 40 lb. (18 kg)

## ORDERING INFORMATION

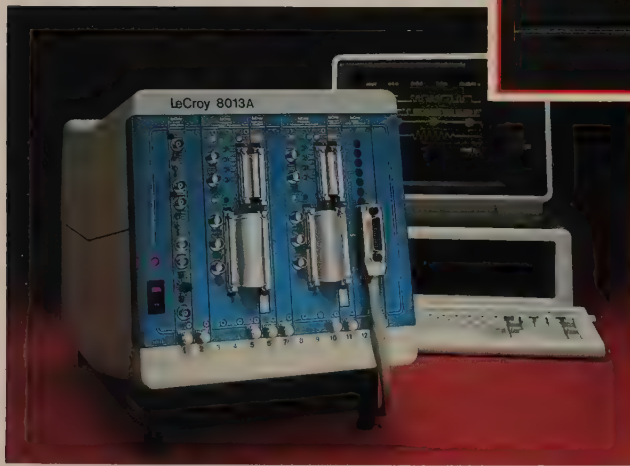
| Model No. | Description                                                           |
|-----------|-----------------------------------------------------------------------|
| 1434A     | Complete 25-position Mainframe Assembly.                              |
| 8013A     | Includes Supply and Fan Tray                                          |
| 8013AGPIB | 13-position Benchtop Mainframe with LeCroy Model 8901A GPIB interface |

## WAVEFORM-CATALYST™

LeCroy Modular Waveform Digitizers and associated memory modules are fully compatible with LeCroy's WAVEFORM-CATALYST, a multi-channel digital oscilloscope with powerful capabilities for acquisition, display, storage, and analysis of high-speed waveforms. WAVEFORM-CATALYST is an integrated system consisting of modular waveform digitizers, any of the IBM™ personal computers (PC, Portable, XT or AT) and system WAVEFORM-CATALYST software.

LeCroy offers other accessory modules such as dual channel amplifier/trigger generators (Model 6102 100 MHz manual and Model 6103 150 MHz programmable). Also available are various clock, time and gate generator modules. Please call our application engineering staff for further information.

All programmable waveform recorder parameters can be set or read and the recorded data can be read by a controller or a computer. This may be accomplished via any mainframe interface such as the LeCroy Model 8901A or 6010 GPIB (IEEE 488) Interface. Other interfaces compatible with the CAMAC (IEEE 583) Standard may be used.



AN IBM PC with the WAVEFORM-CATALYST package can control up to 15 CAMAC mainframes linked via the GPIB IEEE-488 bus.



LeCroy Recorders in high power CAMAC mainframe linked by GPIB IEEE-488 Bus

# LeCroy

*innovators in instrumentation*

### Corporate Headquarters

700 Chestnut Ridge Road  
Chestnut Ridge, NY 10977-6499, USA  
Tel: (914) 578-6038 TWX: 710-577-2832

### European Headquarters

Route du Nant-d'Avril 101  
1217 Meyrin 1-Geneva, Switzerland  
Tel: (022) 82 33 55, Telex: 28230

Other sales and service offices  
throughout the world.

## SECTION 1

### SPECIFICATIONS

- 1.1 See Technical Data Sheet
- 1.2 Additional Specifications of 1434A Subassemblies

The 1434A CAMAC Power System consists of the Model 1434A Crate, the Model 1434AF Fan Unit and the Model 1434AP Power Supply. The Model 1434A Crate utilizes the Berkeley approved Dataway, low insertion force connectors and precision cast runners for 25 module positions. Two guide pins and four captive screws are provided for mounting the 1434AP Power Supply onto the crate. A 50-pin connector at the end of a 12-inch cable supplies power to the crate.

The Power Supply ON-OFF switch, overload shut-down circuit and metering circuitry are contained within the Model 1434AF plug-in Fan Assembly which slides into the bottom 3.5 inches of the Model 1434A Crate. Electrical connection is made to the 1434AP Power Supply via a signal connector and a power connector. The Fan Assembly contains six 127 CFM fans which are used to cool the modules in the crate. A flush-mounted filter can be removed without disturbing the Fan Assembly. The foam air filter can be cleaned by running water through it.

Since the Fan Assembly plugs in, the Power Supply can be removed from the rear of the CAMAC Power System without disturbing front-panel wiring.

Additional features of the CAMAC Power Supply System include:

- a. A 25 A solid-state relay switches the AC power input. The ON-OFF switch activates an auxiliary 5 V supply that powers the automatic shutdown control.
- b. Crate cooling is independent of the Power Supply cooling. Nine 127 CFM fans are used in the system. Six fans cool the crate and three fans cool the power supply heat sink assembly.
- c. A  $\pm 12$  V regulator is provided. Three amps are available from each side. Current drawn from this regulator must be subtracted from the  $\pm 24$  V current capability.
- d. A jumper option in the fan tray activates a relay which automatically turns the crate back on when power is restored after an AC power failure related shutdown.
- e. A connector is provided adjacent to the AC power cord which permits  $\pm 24$  V and  $\pm 6$  V to be monitored.
- f. The regulators for the four CAMAC standard ( $\pm 24$  V and

- g. Overvoltage protection is provided on all outputs.
- h. All voltages incorporate overcurrent protection. The supply will shutdown in the event of a current overload or a continuous short circuit condition. Thermal warning and thermal cutoff switches are provided to protect the power supply should the internal temperature exceed safe limits. BNC connector on the front panel is held at TTL high level under normal operating conditions and clamps to TTL low level to assert a thermal warning. This output can also be used to indicate that the power supply is in its overload shutdown condition by operating an internal switch.
- i. Input Current for 110 V AC:  
(650 W output)
  - Average 12.6 A
  - RMS 17.8 A
  - Peak 37 A

## SECTION 2

### OPERATING INSTRUCTIONS

#### 2.1 Installation and Output Monitoring

The CAMAC Power System is delivered ready for use at the 110 V AC (factory set) supply voltage. To use it at a different voltage see Section 4.3. The power supply usually is shipped in a separate box. The user should mount it on the crate by plugging in the 50-pin connector, pushing the power supply onto the two guide pins and screwing in the four 10-32 screws which hold the power supply on the crate. The crate is usually shipped with the fan tray already inserted (mounted onto the crate with two front-panel thumb screws) so user installation of this subassembly is not necessary. The AC cable should be plugged into an outlet and the ON-OFF switch on the front panel turned on. The unit is then operable. The digital meter on the front panel will display the output voltage or current of the supply selected by the meter switch.

Connecting DC power and the inserting and removal of modules from the Bin should be done only when the AC Power Switch is "OFF".

Circuits for monitoring the current outputs of the  $\pm 6$  V,  $\pm 12$  V and  $\pm 24$  V supplies are calibrated at the factory to an accuracy of  $\pm 2\%$  of full scale. The voltage calibration is preset by high stability 1% resistors and is not adjustable.

A connector located adjacent to the AC receptacle provides a convenient means of monitoring the four standard output voltages, i.e.  $\pm 24$  V and  $\pm 6$  V.

#### 2.2 Overload and Short Circuit

Overload protection is provided by a current-limiting circuit which operates when the current exceeds the normal rating of the supply.

The current limiting circuit has a foldback characteristic which causes the current limit to be reduced when the output is shorted.

If the overload persists for more than 2 msec the automatic shutdown circuit will be triggered and will switch off all six output voltages. Power can be restored by turning the ON/OFF switch off for about 20 sec then turning it on again. If the condition that caused the shutdown is still present the supply will immediately shutdown again.

#### 2.3 Overvoltage

Overvoltage protection is provided for all six outputs by

TranZorbs (tm) which clamp the outputs at voltages approximately 1 to 1.5 V greater than normal. The TranZorbs protect the system to which power is being supplied from excessive voltage due to power supply failure, wiring error, or high voltage transients. If a TranZorb operates because of power supply failure, and the current-limiting circuitry is inoperative, excessive AC current will be drawn and the AC fuses will open.

#### 2.4 Voltage Adjustment

Voltage adjustment potentiometers are located at the top of the power supply. They permit a minimum adjustment of  $\pm 2\%$  of the supply's nominal value for all six voltages.

Power supply regulation and ripple voltages should be measured at the voltage sense leads which are available at the Power Supply PG26 connector for all six voltages.

#### 2.5 Thermal Overload

Four thermal switches are mounted on the power transistor heat sink to protect the Power Supply against thermal overload. The warning switch will close at  $220 \pm 10^{\circ}\text{F}$  (approx.  $104^{\circ}\text{C}$ ), and the breaker switch will open at  $250 \pm 10^{\circ}\text{F}$  (approx.  $121^{\circ}\text{C}$ ). The warning switch is used to indicate the thermal overload condition. If it is not corrected, the breaker switch will shut down the AC input power to the Power Supply.

## SECTION 3

### PRINCIPLES OF OPERATION

#### 3.1 General

The schematic diagram (in rear pocket of manual) shows the interconnections between the Model 1434A CAMAC Crate and CAMAC Power Supply Model 1434AP. In addition, interconnections between the power input, the transformer, rectifier, filter, regulator circuitry and monitoring circuit are shown. The AC input is fed via a three-wire cord, through two slow-blow fuses.

Transformer T1 is used to provide power for all power outputs. In each case, a full wave rectifier is used with filtering, which provides a maximum of 10% ripple at the input to the power transistors and regulator circuits.

Regulator circuits for the all six voltages are located on the regulator printed circuit board in the power supply. This board also contains the trimming potentiometers for each supply. This board can be reached by removing the Power Supply cover.

Rectifiers for the +6 V and +24 V supplies are located on a heat sink above the transformer.

The power transistors are mounted on a fan-cooled heat sink assembly. The current passing through each of the output transistors is fed via current sensing resistors located on the heat sink to the output connector.

The TranZorbs which provide the overvoltage protection are located on the regulator board except for those protecting the +6 V supplies which are mounted on the heat sink assembly.

Capacitors are used at the output of each of the regulators to reduce high frequency noise, and also provide a frequency corner which permits the power regulator circuitry to be operated in a stable mode.

The current-limiting circuit provided in each of the regulators is the fold back type. These circuits will limit at currents in excess of the nominal current rating of the supply and will then fold back and reduce the amount of current drawn. The Power Supply will shut down if the excess current persists.

All six supplies use a common reference source which is buffered and inverted by two low-drift amplifiers to provide reference voltages of +5.0 V and -5.0 V. On turning on the supply, the reference voltage and hence the output voltages rise together with an RC time constant of 3.3 msec.

The shutdown circuit is powered by an auxiliary +5 V supply located in the fan tray. The ON/OFF switch controls this supply.

### 3.2 Voltage Regulators +6 V

The nominal +6 V supply provided by the main transformer, rectifiers and reservoir capacitor bank is stabilized by positive and negative series pass regulators to provide the plus and minus 6 V supplies.

The positive and negative regulators are identical except for the reversed polarity of all the semiconductor devices used, so it is not necessary to describe the operation of both in detail. Each series regulator comprises two parallel high current transistors (Q2P, Q2N). They are situated on two separate heat sinks to share the thermal load equally. Resistors (R1P, R2P, R1N, R2N) act to share the current equally between the two transistors and also provide a voltage drop that enables the load current to be measured.

The bases of the series regulator transistors are driven by a Darlington transistor (Q1P). This permits the output voltage to be controlled by an input of a few mA. This current comes from a current source (Q2P, on the control board 1434AP-1). The drive voltage to Q1P on the heat sink and hence the output voltages are controlled by draining a variable amount of current through Q1P on the regulator board. Since this transistor has an emitter resistor and sees a collector resistance made up of the input resistance of the output stages in parallel with R28, it acts as a voltage amplifier. Its collector voltage, and hence the output voltage, is limited by the zener diode (CR9).

Q1P on the regulator board is driven by a low drift amplifier (U2) which compares the reference voltage with a fraction of the output voltage. C11 provides a dominant pole to ensure the AC stability of the supplies under normal operating conditions.

Protection against excess load current is provided by a foldback current limiter Q3P which clamps the output current to a maximum of 60 A and reduces the load current to about 30 A under short circuit conditions. Neither of these conditions should damage the power supply. To avoid damage to the equipment driven by the supply, however, an overcurrent detector, optocoupler, U6 causes the AC power to the entire supply to be cut off within 20 msec of an overcurrent or short current. Transient overloads, of less than a millisecond, should not trigger a shutdown.

In the event of the short-circuit failure of either of the series pass transistors, the output voltage is clamped to 7.5 V by a TranZorb. This creates an overload current which triggers the shutdown circuit.

If both series pass transistors were to fail to open circuit the control amplifier would shut off Q1P in an attempt to restore the output voltage. This condition is also detected and is used to shut off AC power to the supply.

In addition, if the heat sink on which the series pass transistors are mounted becomes too hot for their continued safe operation the supply will shut off. Advance warning of overheating is given both visually and electronically, enabling the user to reduce the load or to check for problems such as an obstructed air flow.

In all cases, if the supply shuts down, a front-panel warning light indicates the fault condition. If the fault was a transient one, normal operation can be restored by switching off and on again. If the supply immediately shuts off again the fault is still present and should be traced.

If for any reason the shutdown circuit should fail to operate correctly, the increase in AC input current should blow the AC input fuses before permanent damage is done to the power supply.

DC power supplies of this type commonly use crowbar circuits and DC fuses to protect the connected equipment and the supply from excessive voltages and currents. Neither is fitted in this supply. The shutdown circuit operates more rapidly than a fuse and cuts off all six supplies, thus avoiding equipment damage that could result from the failure of only one supply rail. The TranZorbs used to provide overvoltage protection are inherently more reliable than crowbar circuits and have an instant limiting effect rather than the time delayed clamping effect provided by a crowbar. They are also immune to nuisance triggering, a problem with crowbars that is exacerbated by the need to replace fuses.

The TranZorbs behave as high current diodes in the reverse direction and thus protect the power supply from reverse current transients generated by the load.

### 3.3 Voltage Regulators +24 V

The +24 V regulator circuit is identical in operation to the +6 V regulator apart from the configuration of the series regulator transistors and some of the component values. Each supply uses two parallel connected Darlington transistors to control the load current. Similar overvoltage and overcurrent protection is provided.

### 3.4 Voltage Regulators +12 V

The +12 V output current is derived from the +24 V supplies and is regulated by single Darlington transistors. Overvoltage protection is provided, but the overcurrent circuit of the +24 V supply is used to provide overcurrent limiting and shutdown. Thus up to 7 A can be drawn from the +12 V rails without triggering a shutdown, but the 3 A rating should not be deliberately exceeded.

## SECTION 4

### MAINTENANCE

#### 4.1 Ordering of Parts

The Parts list contained in the rear pocket has a list of all electronic parts and has a nine digit number for each which may be referenced when ordering parts from the factory.

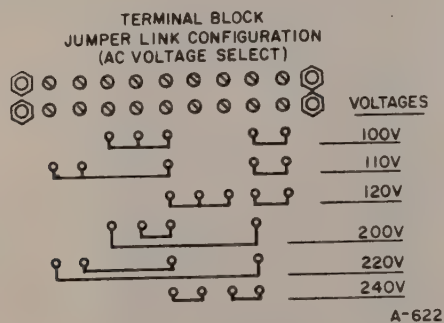
#### 4.2 Adjustments

The voltage adjustments are located on the printed circuit board inside the 1434AP power supply. These potentiometers can be located by reference to the schematic sheet contained in the back pocket of this manual.

#### 4.3 Selecting the AC Supply Voltage

This power supply can be set to operate from 100, 110, 120, 200, 220 and 240 V AC (all  $\pm 10\%$ ). It is shipped set to the most common supply voltage at its destination. Most supplies are factory set to operate on 110 V AC. If the supply has been set for a different operating voltage, a sticker on the front panel indicates the setting.

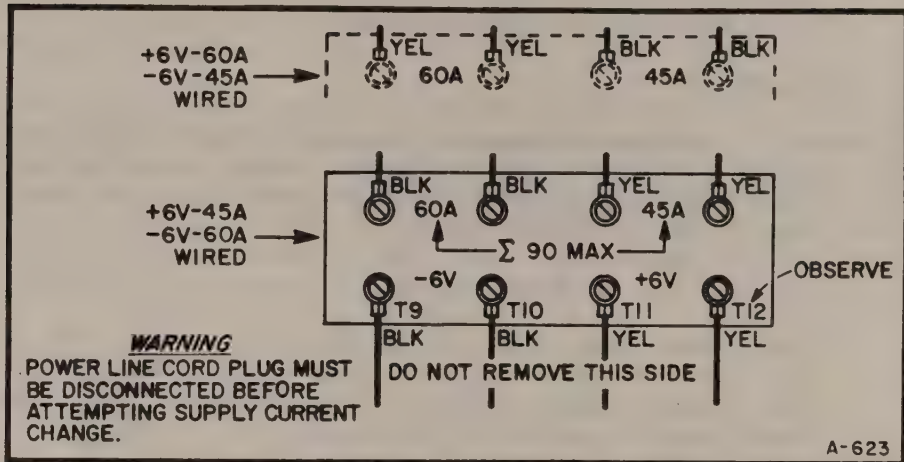
The operating voltage is set by three jumper links in the fan tray. This setting can be changed by changing the positions of the links according to the table below.



Remove the original voltage sticker. Replace the original fuses with ones suited to the new voltage setting. See following section.

#### 4.4 +6 V Line Current Change

For +6 V line current change from factory setting of 60 A at -6 V and 45 A at +6 V refer to the illustration below.



#### 4.5 Fuse Replacement

To ensure the safe operation of this supply it must be fitted with appropriate AC fuses.

|                |                 |                  |
|----------------|-----------------|------------------|
| SIZE           | 1/4" X 1 1/4"   |                  |
| TYPE           | SLOW BLOW       |                  |
| VOLTAGE RATING | 125 V and 250 V |                  |
| CURRENT RATING | 15 A            | 200,220,240 V AC |
|                | 25 A            | 100,110,120 V AC |

#### RECOMMENDED TYPES

|               |         |         |
|---------------|---------|---------|
| LITTELFUSE    | 326 025 | (25A)   |
| BUSS TYPE SPT | MDA15   | (15 A)  |
| LITTLEFUSE    | 255.500 | (1/2 A) |

ADDENDUM  
1434A and 1434A MOD 100

**NOTE: SELECTING THE AC SUPPLY VOLTAGE**

In addition to the jumper changes described in Section 4.3 of this manual, the following changes must be made for 200 V, 220 V, and 240 V operation. NOTE: BE SURE AC LINE PLUG IS DISCONNECTED FROM POWER RECEPTACLE BEFORE MAKING THESE CHANGES.

Remove 1434AF-1 PC board assembly from fan tray. (This board has a transformer and a relay mounted on it).

ON SOLDER SIDE: Cut trace going to K1 relay, pin 13. Cut near pin 13. Add jumper wire from T1 pin-2 to K1-13. Jumper should be black, 22AWG wire, approximately 5.5 inches long.

Reinstall 1434AF-1 board into fan tray.

June 1, 1988

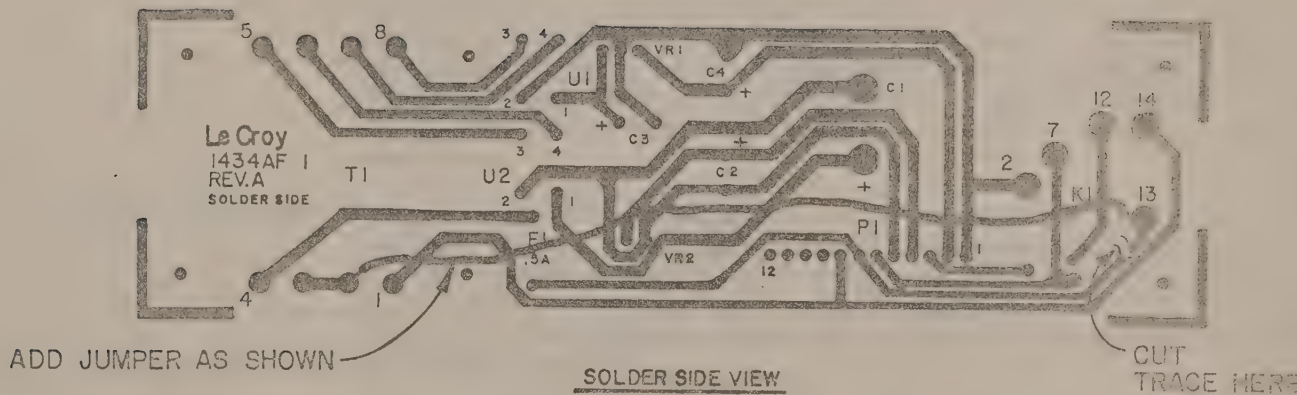


FIG. \_\_\_\_



## SERVICE DOCUMENTATION

**PRODUCT ASSISTANCE** Answers to questions concerning installation, calibration, and use of LeCroy equipment are available from the Customer Services Department, 700 Chestnut Ridge Road, Chestnut Ridge, New York 10977-6499, (914) 578-6059, or your field service office.

**WARRANTY** LeCroy warrants its instrument products to operate within specifications under normal use and service for a period of one year from the date of shipment. Component products, replacement parts, and repairs are warranted for 90 days. Software is thoroughly tested, but is supplied "as is" with no warranty of any kind covering detailed performance. Accessory products not manufactured by LeCroy are covered by the original equipment manufacturers warranty only.

In exercising this warranty, LeCroy will repair or, at its option, replace any product returned to the Customer Service Department or an authorized service facility within the warranty period, provided the warrantor's examination discloses that the product is defective due to workmanship or materials and has not been caused by misuse, neglect, accident or abnormal conditions or operations.

The purchase is responsible for the transportation and insurance charges arising from the return of products to the servicing facility. LeCroy will return all in-warranty products with transportation prepaid.

This warranty is in lieu of all other warranties, express or implied, including but not limited to any implied warranty of merchantability, fitness, or adequacy for any particular purpose or use. LeCroy will not be liable for any special, incidental, or consequential damages, whether in contract, or otherwise.

**SERVICE PROCEDURE** Products requiring maintenance should be returned to the Customer Service Department or authorized service facility. If under warranty, LeCroy will repair or replace the product at no charge. The purchaser is only responsible for the transportation charges arising from return of the goods to the service facility.

For all LeCroy products in need of repair after the warranty period, the customer must provide a Purchase Order Number before any inoperative equipment can be repaired or replaced. The customer will be billed for the parts and labor for the repair as well as for shipping.

All products returned for repair should be identified by the model and serial numbers and include a description of the defect or failure, name and phone number of the user. In the case of products returned to the Customer Service Department,

a Return Authorization Number is required and may be obtained by contacting the Department at (914) 578-6059 or (914) 425-2000.

#### DOCUMENTATION DISCREPANCIES

LeCroy is committed to providing state-of-the-art instrumentation and is continually refining and improving the performance of its products. While physical modifications can be implemented quite rapidly, the corrected documentation frequently requires more time to produce. Consequently, the schematics may not agree in every detail with the accompanying product. There may be small discrepancies in the values of components for the purposes of pulse shape, timing, offset, etc., and, occasionally, minor logic changes. Where any such inconsistencies exist, please be assured that the unit is correct and incorporates the most up-to-date circuitry.

#### SPARE PARTS

The components used in LeCroy products are referenced on the supplied Replacement Parts List.

Replacement components are available from LeCroy for servicing LeCroy manufactured products. Please contact the Customer Service Department or local field service office and reference the LeCroy 9-digit part number.

XENTIS V3.1A  
ZEBPSS  
ZZIPMS

LECRON CORPORATION  
1434A PARTS LIST

PAGE 1  
14-OCT-87  
MANUALBOM.XCF;

| PART NUMBER | DESCRIPTION           | QUANTITY PER |
|-------------|-----------------------|--------------|
| 1434AC      | CRATE ASSEMBLY 1434AC | 1            |
| 1434AF      | CAMAC CRATE FAN TRAY  | 1            |
| 1434AP      | 1434A POWER SUPPLY    | 1            |

End of report. 3 Details encountered.



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 485042003   | GROMMET NYLON CATERPILLAR | 2            |
| 511143302   | GUIDE PIN 1433            | 2            |
| 511143411   | SIDE PNL LEFT FOR 1434-1  | 1            |
| 511143412   | BRACKET CONN BLOCK 1434-1 | 1            |
| 511143413   | SIDE PNL RIGHT FOR 1434-1 | 1            |
| 520440156   | SPACER NYLON 4-40X1+3/8   | 3            |
| 522400656   | SPACER ROUND #4 1+3/8 LG  | 3            |
| 530301001   | HANDLE 10-32 MTG 6" LONG  | 2            |
| 540205000   | CAMAC CRATE RAILS 6PC SET | 1            |
| 554140001   | SCREW FLAT PHIL M4-0.7X10 | 12           |
| 555500002   | SCREW UNDR CUT10-32X3/8   | 4            |
| 560440005   | SCREW PHILIPS 4-40X5/16   | 2            |
| 560440006   | SCREW PHILIPS 4-40X3/8    | 10           |
| 560440028   | SCREW PHILIPS 4-40X1+3/4  | 4            |
| 567632004   | SCREW FLAT PHIL 6-32X1/4  | 4            |
| 567632007   | SCREW FLAT PHIL 6-32X7/16 | 8            |
| 577400001   | WASHER SHAKEPROOF SIZE 4  | 15           |
| 701434014   | BACK PLANE SUPPORT 1434   | 2            |
| 701434016   | BLOCK FOR FAN CRATE 1434  | 2            |
| 701434130   | SHIELD (BACKPLANE) 1434A  | 1            |

End of report. 20 Details encountered.



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 405212002   | GUIDE PIN (MALE)          | 2            |
| 405312001   | GUIDE PIN (FEMALE)        | 2            |
| 405410016   | CONNECTOR PIN (MALE)      | 42           |
| 455210050   | BLOCK FOR MALE PINS 50    | 1            |
| 471211002   | BUS BAR SET (11 PCS)      | 11           |
| 510110004   | GROUND LUG #4 CLR         | 2            |
| 567256004   | SCREW FLAT PHIL 2-56X1/4  | 1            |
| 590001016   | WIRE TEFLON 19/29 BLK 16  | 2            |
| 590001018   | WIRE TEFLON 19/13 BLK 18  | 6            |
| 590111016   | WIRE TEFLON 19/29 BRN 16  | 2            |
| 590111018   | WIRE TEFLON 19/13 BRN 18  | 2            |
| 590221016   | WIRE TEFLON 19/29 RED 16  | 2            |
| 590221018   | WIRE TEFLON 19/13 RED 18  | 2            |
| 590331016   | WIRE TEFLON 19/29 ORA 16  | 2            |
| 590331018   | WIRE TEFLON 19/13 ORA 18  | 10           |
| 590441016   | WIRE TEFLON 19/29 YEL 16  | 3            |
| 590441018   | WIRE TEFLON 19/13 YEL 18  | 20           |
| 590551016   | WIRE TEFLON 19/29 GRN 16  | 2            |
| 590551018   | WIRE TEFLON 19/13 GRN 18  | 2            |
| 590661016   | WIRE TEFLON 19/29 BLU 16  | 2            |
| 590661018   | WIRE TEFLON 19/13 BLU 18  | 12           |
| 590881016   | WIRE TEFLON 19/29 GRAY 16 | 2            |
| 590881018   | WIRE TEFLON 19/13 GRAY 18 | 2            |
| 590991016   | WIRE TEFLON 19/29 WHT 16  | 8            |
| 590991018   | WIRE TEFLON 19/13 WHT 18  | 7            |
| 594120001   | TIEWRAP                   | 16           |
| 701434015   | BACK PLANE CONN BRKT 1434 | 1            |
| 711434002   | PC BD PREASS'Y 1434-2     | 1            |

End of report. 28 Details encountered.



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 103427104   | CAP CERA MONO 100V .1 UF  | 3            |
| 103437334   | CAP CERA MONO 100V .33 UF | 1            |
| 116115102   | CAP DIP MICA 100V 1000 PF | 4            |
| 116515101   | CAP DIP MICA DM10 100 PF  | 2            |
| 116515201   | CAP DIP MICA DM10 200 PF  | 2            |
| 116515331   | CAP DIP MICA DM10 330 PF  | 2            |
| 125675334   | CAP POLYESTER FILM .33 UF | 1            |
| 142124476   | CAP TANT DIP CASE 47 UF   | 1            |
| 142824685   | CAP TANT DIP CASE 6.8 UF  | 6            |
| 147696330   | CAP ALUM METAL CAN 330 UF | 2            |
| 147784102   | CAP ALUM METAL CAN 1000UF | 2            |
| 147956047   | CAP ALUM METAL CAN 47 UF  | 4            |
| 161335102   | RES CARBON FILM 1 K       | 2            |
| 161335103   | RES CARBON FILM 10 K      | 9            |
| 161335104   | RES CARBON FILM 100 K     | 2            |
| 161335151   | RES CARBON FILM 150 OHMS  | 2            |
| 161335152   | RES CARBON FILM 1.5 K     | 2            |
| 161335181   | RES CARBON FILM 180 OHMS  | 6            |
| 161335182   | RES COMP 1/4W 5% 1.8 K    | 2            |
| 161335222   | RES CARBON FILM 2.2 K     | 2            |
| 161335223   | RES CARBON FILM 22 K      | 2            |
| 161335301   | RES CARBON FILM 300 OHMS  | 4            |
| 161335332   | RES CARBON FILM 3.3 K     | 3            |
| 161335471   | RES CARBON FILM 470 OHMS  | 4            |
| 161335472   | RES CARBON FILM 4.7 K     | 3            |
| 161335510   | RES CARBON FILM 51 OHMS   | 7            |
| 161555331   | RES COMP 1W 5% 330 OHMS   | 2            |
| 168531305   | RES PREC RN55D 121 OHMS   | 1            |
| 168531333   | RES PREC RN55D 237 OHMS   | 1            |
| 168531393   | RES PREC RN55D 1.00 K     | 3            |
| 168531421   | RES PREC RN55D 1.96 K     | 3            |
| 168531451   | RES PREC RN55D 4.02 K     | 2            |
| 168531461   | RES PREC RN55D 5.11 K     | 2            |
| 168531474   | RES PREC RN55D 6.98 K     | 2            |
| 168531477   | RES PREC RN55D 7.50 K     | 2            |
| 168531489   | RES PREC RN55D 10.0 K     | 4            |
| 181447102   | RES VARI CERMET 1 K       | 10           |
| 181447103   | RES VARI CERMET 10 K      | 2            |
| 208031010   | IC QUAD DIFF COMP LM339N  | 1            |
| 208122337   | IC ADJ -VOLT REG LM337T   | 1            |
| 208150411   | IC OP AMP J-FET IN LF411  | 8            |
| 208212002   | IC VOLT REF +5V REF-02    | 1            |
| 208570317   | IC ADJ +V REG LM317       | 1            |
| 229031120   | TRANS VOLT SUPPR 5KP12A   | 2            |
| 229031240   | TRANS VOLT SUPPR 5KP24A   | 2            |
| 230110005   | DIODE SWITCHING 1N4448    | 9            |
| 240225702   | DIODE ZENER 2.7V 1N5986A  | 2            |
| 240225716   | DIODE ZENER 12V 1N5242    | 2            |
| 240225719   | DIODE ZENER 16V 1N5246A   | 6            |
| 256010102   | DIODE LED (RED) DIFF LENS | 1            |
| 260020035   | OPTICAL ISOLATOR 4N35     | 4            |
| 270110003   | TRANSISTOR NPN 2N2222A    | 5            |
| 275110001   | TRANSISTOR PNP 2N2907A    | 5            |
| 280170104   | TRANSISTOR FET N VN0104N3 | 3            |



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 281170104   | TRANSISTOR FET P VP0104N3 | 3            |
| 400010008   | SOCKET IC ST DIP-8        | 9            |
| 400020014   | SOCKET IC ST DIP-14       | 1            |
| 408063005   | W-W PIN, ONE SIDE, 1 WRAP | 8            |
| 454314016   | HDR DIP SOLD TO MALE 16   | 1            |
| 454314020   | HDR SINGL ROW STRAIGHT 20 | 2            |
| 454710026   | HDR DBL ROW RT ANGL 26    | 1            |
| 455011001   | CONTACT (MALE PIN)        | 4            |
| 455021001   | CONTACT (FEMALE SOCKET)   | 4            |
| 455121004   | BLOC FOR CRIMP FEM PIN 4  | 1            |
| 455211004   | BLOC FOR CRIMP MALE PIN 4 | 1            |
| 455720020   | CONN HOUSING FEM PINS 20  | 4            |
| 455910020   | CONNECTOR COVER 20-POS    | 4            |
| 590111014   | WIRE TEFLON 19/27 BRN 14  | 1            |
| 590221014   | WIRE TEFLON 19/27 RED 14  | 1            |
| 590551014   | WIRE TEFLON 19/27 GRN 14  | 1            |
| 590661022   | WIRE TEFLON 7/30 BLU 22   | 14           |
| 590881014   | WIRE TEFLON 19/27 GRAY 14 | 1            |
| 590991014   | WIRE TEFLON 19/27 WHT 14  | 1            |
| 711434131   | PC BD PREASS'Y 1434AP-1   | 1            |

End of report. 74 Details encountered.



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 235990545   | DIODE RECT SCHOTTKY 6545  | 8            |
| 405770009   | TERMINAL WIRE END #10     | 16           |
| 500860661   | INSULATOR FOR PWR DIODE   | 16           |
| 510130039   | GROUND LUG .390 HOLE      | 8            |
| 575110002   | WASHER FL 1/4 ID .500 OD  | 8            |
| 575900006   | WASHER FLAT TEFLON .312OD | 16           |
| 580128001   | NUT HEX 1/4-28            | 8            |
| 590001014   | WIRE TEFLON 19/27 BLK 14  | 13           |
| 590111014   | WIRE TEFLON 19/27 BRN 14  | 7            |
| 590391014   | WIRE TEF 19/27 ORA/WHT 14 | 4            |
| 590441014   | WIRE TEFLON 19/27 YEL 14  | 10           |
| 590691014   | WIRE TEF 19/27 BLU/WHT 14 | 3            |
| 591101010   | WIRE BUS TIN-COPP AWG 10  | 2            |
| 701034001   | HEAT SINK (RECTIF) 1034P  | 1            |

End of report. 14 Details encountered.



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 270180000   | TRANSISTOR NPN PWR 14000  | 2            |
| 275131001   | TRANSISTOR PNP PWR 14001  | 2            |
| 286110051   | TRANSISTOR PNP DAR 2N6051 | 3            |
| 286120125   | TRANS PNP DARLINGT TIP125 | 1            |
| 286210058   | TRANSISTOR NPN DAR 2N6058 | 3            |
| 286220120   | TRANS NPN DARLINGT TIP120 | 1            |
| 429010001   | SWITCH THERMAL N.O.       | 2            |
| 429010002   | SWITCH THERMAL N.C.       | 2            |
| 455011002   | CONTACT CRIMP (MALE PIN)  | 8            |
| 455210005   | BLOC FOR CRIMP MALE PIN 5 | 2            |
| 500860302   | INSULATOR FOR TO-220      | 2            |
| 500860511   | INSULATOR FOR TO-3        | 10           |
| 505080006   | HEAT SINK FOR TO-3        | 4            |
| 520600208   | SPACER PHENOLIC .250X.250 | 28           |
| 530409339   | FAN AXIAL 50/60 HZ 115 V  | 1            |
| 560032004   | SCREW PHILIPS 10-32X1/4   | 14           |
| 560440005   | SCREW PHILIPS 4-40X5/16   | 8            |
| 560632004   | SCREW PHILIPS 6-32X1/4    | 8            |
| 560632007   | SCREW PHILIPS 6-32X7/16   | 4            |
| 560632008   | SCREW PHILIPS 6-32X1/2    | 8            |
| 560632012   | SCREW PHILIPS 6-32X3/4    | 12           |
| 560632014   | SCREW PHILIPS 6-32X7/8    | 8            |
| 574409005   | WASHER SHOULDER NYLON #4  | 2            |
| 575430002   | WASHER FLAT .312 OD #4    | 2            |
| 575600006   | WASHER FLAT TEFLON # 6    | 20           |
| 576410001   | WASHER SPLIT LOCK SIZE 4  | 8            |
| 576610001   | WASHER SPLIT LOCK SIZE 6  | 12           |
| 577000002   | WASHER SHAKEPROOF SIZE 10 | 14           |
| 577600001   | WASHER SHAKEPROOF SIZE 6  | 28           |
| 590001018   | WIRE TEFLON 19/13 BLK 18  | 3            |
| 590221018   | WIRE TEFLON 19/13 RED 18  | 2            |
| 590941018   | WIRE TEF 19/13 WHT/YEL 18 | 2            |
| 701034002   | HEAT SINK/FAN BRKT 1034P  | 1            |
| 701034006   | HEAT SINK BRACKET 1034P   | 1            |
| 701034020   | HEAT SINK FOR 1034P       | 2            |

End of report. 35 Details encountered.



XENTIS V3.1A  
ZZBPSS  
ZZIPMS

LECROY CORPORATION  
1434AP-4N PARTS LIST

PAGE 1  
09-DEC-87  
MANUALBOM.XCF;

| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 116525102   | CAP DIP MICA DM15 1000 PF | 1            |
| 147737100   | CAP ALUM METAL CAN 100 UF | 1            |
| 161335331   | RES CARBON FILM 330 OHMS  | 1            |
| 161335510   | RES CARBON FILM 51 OHMS   | 6            |
| 172557010   | RES PWR WIREWOUND .1 OHMS | 1            |
| 172557020   | RES PWR WIREWOUND .2 OHMS | 2            |
| 175666005   | RESISTOR PWR WW .05 OHM   | 4            |
| 181457102   | RES VARI CERMET 1 K       | 2            |
| 229020065   | TRANS VOLT SUPPR 5KP6.5A  | 1            |
| 454314020   | HDR SINGL ROW STRAIGHT 20 | 1            |
| 524032001   | STANDOFF BRASS 10-32X1/8  | 7            |
| 524632012   | STANDOFF BRASS 6-32X1/8LG | 10           |
| 711434139   | PC BD PREASS'Y 1434AP-4N  | 1            |

End of report. 13 Details encountered.

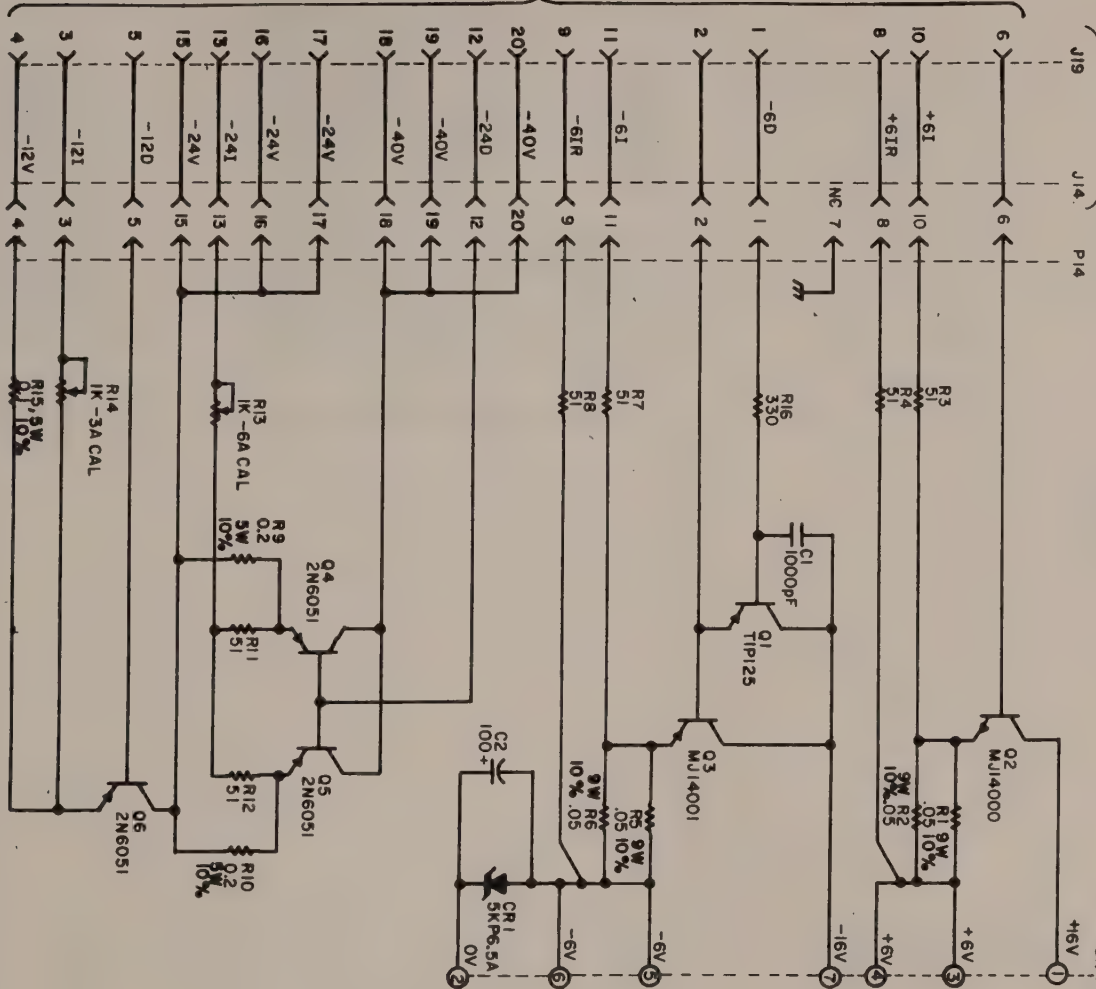


# WIRING HARNESS

## NEGATIVE

TERMINALS  
ON PC BD

TO  
1434AP-1  
(P19)



LAST REFERENCE DESIGNATION USED

|     |          |  |
|-----|----------|--|
| Q1  | TIP125   |  |
| Q2  | MJ14000  |  |
| Q3  | MJ14001  |  |
| Q4  | 2N6051   |  |
| Q5  | 2N6051   |  |
| Q6  | 2N6051   |  |
| R1  | 10%      |  |
| R2  | 0.5      |  |
| R3  | 10%      |  |
| R4  | 10%      |  |
| R5  | 10%      |  |
| R6  | 10%      |  |
| R7  | 10%      |  |
| R8  | 10%      |  |
| R9  | 10%      |  |
| R10 | 10%      |  |
| R11 | 10%      |  |
| R12 | 10%      |  |
| R13 | 10%      |  |
| R14 | 10%      |  |
| R15 | 10%      |  |
| C1  | 1000pF   |  |
| C2  | 100+     |  |
| CR1 | 5K P6.5A |  |

NOTICE: THIS DESIGN IS THE SOLE PROPERTY OF LECROY RESEARCH SYSTEMS. IT CONTAINS PROPRIETARY DATA AND IS NOT TO BE USED, REPRODUCED OR REPRODUCED IN ANY MANNER WITHOUT THE APPROVAL OF LECROY RESEARCH SYSTEMS.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.

TOLERANCES ARE IN DECIMALS: 3PL ± 0.05, 4PL ± 0.03, 5PL ± 0.02, 6PL ± 0.01, 7PL ± 0.005, 8PL ± 0.002, 9PL ± 0.001, 10PL ± 0.0005.

APPROVED BY/DATE: *W.S. 2/1/84*

SCALE: 1:1

DATE: 2/1/84

REV: 1

ECO NO: 1434AP-4N-81

1072

1434AP-4N

ELECTRICAL SCHEMATIC

LECROY RESEARCH SYSTEMS

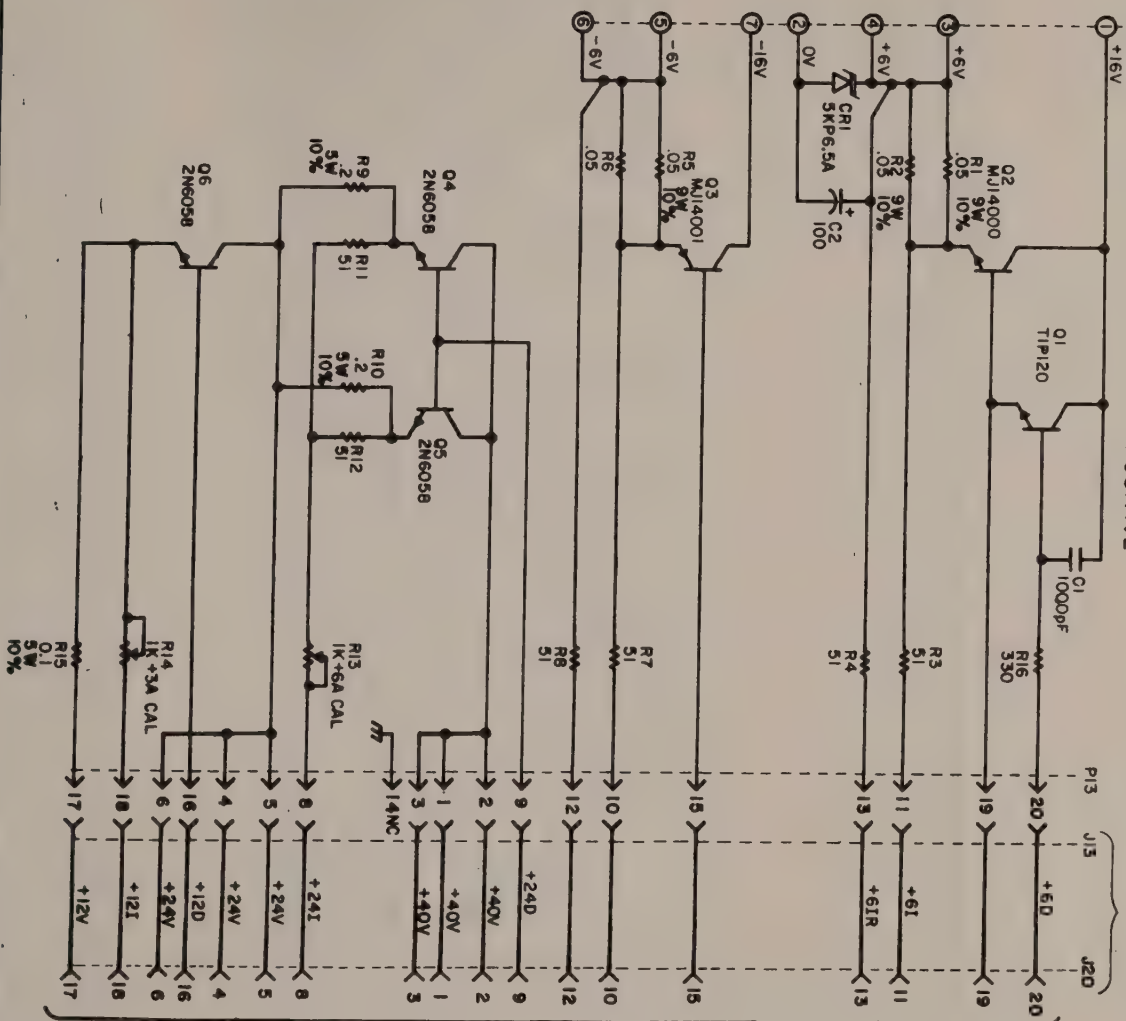


| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 116525102   | CAP DIP MICA DM15 1000 PF | 1            |
| 147737100   | CAP ALUM METAL CAN 100 UF | 1            |
| 161335331   | RES CARBON FILM 330 OHMS  | 1            |
| 161335510   | RES CARBON FILM 51 OHMS   | 6            |
| 172557010   | RES PWR WIREWOUND .1 OHMS | 1            |
| 172557020   | RES PWR WIREWOUND .2 OHMS | 2            |
| 175666005   | RESISTOR PWR WW .05 OHM   | 4            |
| 181457102   | RES VARI CERMET 1 K       | 2            |
| 229020065   | TRANS VOLT SUPPR 5KP6.5A  | 1            |
| 454314020   | HDR SINGL ROW STRAIGHT 20 | 1            |
| 524032001   | STANDOFF BRASS 10-32X1/8  | 7            |
| 524632012   | STANDOFF BRASS 6-32X1/8LG | 10           |
| 711434134   | PC BD PREASS'Y 1434AP-4P  | 1            |

End of report. 13 Details encountered.



## WIRING HARNESS



TO 1434AP-1  
(P20)

| LAST REFERENCE DESIGNATION USED |   |    |   |  |  |  |  |  |  |
|---------------------------------|---|----|---|--|--|--|--|--|--|
| QCR                             | R | C  |   |  |  |  |  |  |  |
| 6                               | 1 | 16 | 2 |  |  |  |  |  |  |

NOTE: UNLESS OTHERWISE SPECIFIED:

ALL RESISTOR VALUES ARE IN OHMS, 1/4 W, 5%  
ALL CAPACITOR VALUES ARE IN MICROFARADS

NOTICE: THIS DISK IS THE SOLE PROPERTY OF LARRY RESEARCH SYSTEMS. IT CONTAINS PROPRIETARY INFORMATION AND IS FURNISHED WITH THE UNDERSTANDING THAT IT IS NOT TO BE USED, DISCLOSED OR REPRODUCED IN ANY MANNER WITHOUT THE APPROVAL OF LARRY RESEARCH SYSTEMS.

**Lectro** RESEARCH SYSTEMS

ELECTRICAL SCHEMATIC

1434AP-4P

1990

|     |      |
|-----|------|
| Age | 1990 |
|-----|------|

|      |  |  |  |
|------|--|--|--|
| DATE |  |  |  |
|------|--|--|--|



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 102857403   | CAP CERA DISC 600V .04 UF | 1            |
| 148267563   | CAP ALU METL CAN 56000 UF | 4            |
| 148787722   | CAP ALU METAL CAN 7200 UF | 2            |
| 161555510   | RES COMP 1W 5% 51 OHMS    | 1            |
| 161665391   | RES COMP 2W 5% 390 OHMS   | 2            |
| 236230775   | RECTIFIER BRIDGE J-775-2  | 1            |
| 377011018   | LABEL:CURRENTS FOR 1434AP | 1            |
| 403220026   | CONN FLAT CABLE 26-SOCKET | 1            |
| 405212002   | GUIDE PIN (MALE)          | 2            |
| 405312001   | GUIDE PIN (FEMALE)        | 2            |
| 405510001   | CONNECTOR PIN (FEMALE)    | 37           |
| 405747001   | RECEPTACLE WIRE END SINGL | 6            |
| 405770009   | TERMINAL WIRE END #10     | 23           |
| 405770014   | TERMINAL WIRE END #10     | 20           |
| 407099013   | PLUG AC LINE 3-POS        | 1            |
| 407099313   | ADAPTER FOR AC LINE 3-POS | 1            |
| 433171001   | FUSE SLO-BLO 125V 25 AMP  | 2            |
| 434132002   | FUSEHOLDER PANEL MTG      | 2            |
| 440201006   | TRANSFORMER (POWER) 1434A | 1            |
| 453220025   | CONN FLAT CABLE FEMALE 25 | 1            |
| 455011001   | CONTACT (MALE PIN)        | 6            |
| 455021001   | CONTACT (FEMALE SOCKET)   | 6            |
| 455021008   | CONTACT CRIMP (FEM PIN)   | 13           |
| 455021013   | CONTACT CRIMP (FEM PIN)   | 12           |
| 455120016   | BLOC FOR CRIMP SOCKETS 16 | 1            |
| 455121004   | BLOC FOR CRIMP FEM PIN 4  | 2            |
| 455211004   | BLOC FOR CRIMP MALE PIN 4 | 2            |
| 455220005   | BLOCK FOR CRIMP FEM PIN 5 | 3            |
| 455220050   | BLOCK FOR CRIMP SOCKET 50 | 1            |
| 455320032   | CONN RACK/PANEL FEMALE 32 | 1            |
| 515403020   | CAPACITOR CLAMP 2" DIA    | 4            |
| 519120012   | SNAP BUSHING 3/4" ID      | 2            |
| 521400016   | SPACER ROUND #4 1/2       | 2            |
| 521440024   | SPACER HEX 4-40X3/4       | 4            |
| 524440006   | SPACER MALE/FEM 9/16 LG   | 4            |
| 530309006   | FAN GUARD                 | 3            |
| 530409339   | FAN AXIAL 50/60 HZ 115 V  | 2            |
| 555465001   | SCREW HEX HEAD 1/4-20X3/4 | 1            |
| 555710001   | CAPTIVE SCREW 10-32       | 4            |
| 560032006   | SCREW PHILIPS 10-32X3/8   | 4            |
| 560032008   | SCREW PHILIPS 10-32X1/2   | 11           |
| 560440003   | SCREW PHILIPS 4-40X3/16   | 2            |
| 560440006   | SCREW PHILIPS 4-40X3/8    | 9            |
| 560440012   | SCREW PHILIPS 4-40X3/4    | 2            |
| 560632004   | SCREW PHILIPS 6-32X1/4    | 29           |
| 560632006   | SCREW PHILIPS 6-32X3/8    | 2            |
| 560632008   | SCREW PHILIPS 6-32X1/2    | 8            |
| 560632010   | SCREW PHILIPS 6-32X5/8    | 1            |
| 560632012   | SCREW PHILIPS 6-32X3/4    | 12           |
| 567032008   | SCREW FLAT PHIL 10-32X1/2 | 1            |
| 567032014   | SCREW FLAT PHIL 6-32X7/8  | 2            |
| 567440006   | SCREW FLAT PHIL 4-40X3/8  | 2            |
| 567632004   | SCREW FLAT PHIL 6-32X1/4  | 5            |
| 567632006   | SCREW FLAT PHIL 6-32X3/8  | 4            |



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 568440004   | SCREW FLAT PHIL 4-40X1/4  | 4            |
| 575050002   | WASHER FLAT REG OD #10    | 4            |
| 575410007   | WASHER FIBER #4 (.250 OD) | 2            |
| 575430002   | WASHER FLAT .312 OD #4    | 2            |
| 575610002   | WASHER FLAT REG OD SIZE 6 | 4            |
| 576410001   | WASHER SPLIT LOCK SIZE 4  | 4            |
| 577000002   | WASHER SHAKEPROOF SIZE 10 | 15           |
| 577400001   | WASHER SHAKEPROOF SIZE 4  | 3            |
| 577600001   | WASHER SHAKEPROOF SIZE 6  | 36           |
| 580006001   | NUT HEX 10-32             | 1            |
| 580632001   | NUT HEX 6-32              | 22           |
| 589203612   | CABLE 600V 3-COND         | 10           |
| 590001014   | WIRE TEFLON 19/27 BLK 14  | 3            |
| 590001018   | WIRE TEFLON 19/13 BLK 18  | 3            |
| 590001022   | WIRE TEFLON 7/30 BLK 22   | 4            |
| 590091018   | WIRE TEF 19/13 BLK/WHT 18 | 2            |
| 590111014   | WIRE TEFLON 19/27 BRN 14  | 2            |
| 590111018   | WIRE TEFLON 19/13 BRN 18  | 1            |
| 590111022   | WIRE TEFLON 7/30 BRN 22   | 2            |
| 590221014   | WIRE TEFLON 19/27 RED 14  | 2            |
| 590221022   | WIRE TEFLON 7/30 RED 22   | 3            |
| 590261014   | WIRE TEF 19/27 RED/BLU 14 | 2            |
| 590291014   | WIRE TEF 19/27 RED/WHT 14 | 2            |
| 590291022   | WIRE TEFL 7/30 RED/WHT 22 | 1            |
| 590331014   | WIRE TEFLON 19/27 ORA 14  | 8            |
| 590331022   | WIRE TEFLON 7/30 ORA 22   | 3            |
| 590391014   | WIRE TEF 19/27 ORA/WHT 14 | 6            |
| 590441014   | WIRE TEFLON 19/27 YEL 14  | 20           |
| 590441022   | WIRE TEFLON 7/30 YEL 22   | 3            |
| 590491022   | WIRE TWFL 7/30 YEL/WHT 22 | 6            |
| 590551014   | WIRE TEFLON 19/27 GRN 14  | 2            |
| 590551022   | WIRE TEFLON 7/30 GRN 22   | 2            |
| 590661014   | WIRE TEFLON 19/27 BLU 14  | 8            |
| 590661022   | WIRE TEFLON 7/30 BLU 22   | 3            |
| 590691014   | WIRE TEF 19/27 BLU/WHT 14 | 7            |
| 590691022   | WIRE TEFL 7/30 BLU/WHT 22 | 2            |
| 590771016   | WIRE TEFLON 19/29 VIO 16  | 2            |
| 590771022   | WIRE TEFLON 7/30 VIO 22   | 3            |
| 590791018   | WIRE TEF 19/13 VIO/WHT 18 | 2            |
| 590881014   | WIRE TEFLON 19/27 GRAY 14 | 2            |
| 590881022   | WIRE TEFLON 7/30 GRAY 22  | 3            |
| 590891014   | WIRE TEF 19/27 GRAY/WHT14 | 2            |
| 590941018   | WIRE TEF 19/13 WHT/YEL 18 | 2            |
| 590991014   | WIRE TEFLON 19/27 WHT 14  | 12           |
| 590991016   | WIRE TEFLON 19/29 WHT 16  | 2            |
| 590991022   | WIRE TEFLON 7/30 WHT 22   | 6            |
| 592030026   | CABLE FLAT AWG 28 26-COND | 2            |
| 594220001   | STRAIN RELIEF BUSHING     | 1            |
| 594230002   | CABLE CLIP ADHESIVE BACK  | 2            |
| 701034003   | BUSS BAR (SHORT) 1034P    | 2            |
| 701034004   | AC CONNECTOR PLATE 1034P  | 1            |
| 701034005   | CONN MTG BRACKET 1034P    | 1            |
| 701034011   | BUSS BAR (LONG) 1034P     | 1            |
| 701034012   | SUPPORT BAR 1034P         | 2            |



XENTIS V3.1A  
ZZBPSS  
ZZIPMS

LECROY CORPORATION  
1434AP-5 PARTS LIST

| PART NUMBER | DESCRIPTION             | QUANTITY PER |
|-------------|-------------------------|--------------|
| 701034013   | CHASSIS GND BLOCK 1034P | 1            |
| 701034014   | CAPACITOR BRACKET 1034P | 1            |
| 701034016   | COVER 1034P             | 1            |
| 701034017   | CHASSIS 1034P           | 1            |
| 701034018   | END PLATE (LEFT) 1034P  | 1            |
| 701034019   | END PLATE (RIGHT) 1034P | 1            |

End of report. 114 Details encountered.



XENTIS V3.1A  
ZZBPSS  
ZZIPMS

LECROY CORPORATION  
1434AP-6 PARTS LIST

| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 520440208   | SPACER PHENOLIC 4-40X1/4  | 1            |
| 524032001   | STANDOFF BRASS 10-32X1/8  | 8            |
| 557440404   | SCREW RND HD NYL 4-40X1/4 | 1            |
| 560032004   | SCREW PHILIPS 10-32X1/4   | 8            |
| 560440004   | SCREW PHILIPS 4-40X1/4    | 4            |
| 711434136   | PC BD PREASS'Y 1434AP-6   | 1            |

End of report. 6 Details encountered.



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 147436221   | CAP ALU METAL CAN 220 UF  | 2            |
| 147794471   | CAP ALUM METAL CAN 470 UF | 1            |
| 148815472   | CAP ALUM METAL CAN 4700UF | 1            |
| 208122002   | IC VOLT REG POS UA7805    | 2            |
| 236150018   | RECTIFIER (BRIDGE) VM18   | 2            |
| 431030001   | RELAY GEN PURPOSE SPDT    | 1            |
| 433220003   | FUSE PICO II 125V .5 AMP  | 1            |
| 440060008   | TRANSFORMER (POWER) DUAL  | 1            |
| 454313012   | HDR SINGL ROW STRAIGHT 12 | 1            |
| 505050000   | HEAT SINK                 | 1            |
| 560440005   | SCREW PHILIPS 4-40X5/16   | 1            |
| 576410001   | WASHER SPLIT LOCK SIZE 4  | 1            |
| 577400001   | WASHER SHAKEPROOF SIZE 4  | 1            |
| 580440001   | NUT HEX STANDARD 4-40     | 1            |
| 591101022   | WIRE BUS TIN-COPP AWG 22  | 1            |
| 711434141   | PC BD PREASS'Y 1434AF-1   | 1            |

End of report. 16 Details encountered.



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 103427104   | CAP CERA MONO 100V .1 UF  | 2            |
| 142224476   | CAP TANT DIP CASE 47 UF   | 2            |
| 146424106   | CAP MINI ALUM 20% 10 UF   | 1            |
| 148120102   | CAP ALU METAL CAN 1000 UF | 1            |
| 161335103   | RES CARBON FILM 10 K      | 2            |
| 161335222   | RES CARBON FILM 2.2 K     | 1            |
| 161335331   | RES CARBON FILM 330 OHMS  | 3            |
| 161335471   | RES CARBON FILM 470 OHMS  | 1            |
| 161335510   | RES CARBON FILM 51 OHMS   | 2            |
| 161445222   | RES CARBON FILM 2.2 K     | 6            |
| 168139393   | RES RN55E .1% 1.0 K       | 1            |
| 168531495   | RES PREC RN55D 11.5 K     | 4            |
| 168531621   | RES PREC RN55D 237 K      | 2            |
| 168531625   | RES PREC RN55D 261 K      | 2            |
| 190642222   | RESISTOR NETWORK 2.2 K    | 1            |
| 200031060   | IC HEX INV HI-V SN7416N   | 1            |
| 200031062   | IC 4-IN NOR/STROB SN7425N | 1            |
| 230110005   | DIODE SWITCHING 1N4448    | 1            |
| 270110003   | TRANSISTOR NPN 2N2222A    | 1            |
| 385040007   | FILM DBL MATTE .0075"     | 0            |
| 400020014   | SOCKET IC ST DIP-14       | 1            |
| 409442100   | SWITCH TOGGLE PC MTG 4PDT | 1            |
| 413432030   | SWITCH ROTARY PC MTG 4P6T | 1            |
| 419111003   | SWITCH SLIDE (SINGLE)SPST | 2            |
| 454313012   | HDR SINGL ROW STRAIGHT 12 | 1            |
| 454710026   | HDR DBL ROW RT ANGL 26    | 1            |
| 454713020   | HDR SOLD TAIL/MALE PIN 20 | 1            |
| 468039002   | TEST POINT (JACK) 2MM BLK | 7            |
| 701034101   | SWITCH ADAPTER SHAFT 1034 | 1            |
| 711434142   | PC BD PREASS'Y 1434AF-2   | 1            |

End of report. 30 Details encountered.



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 168531481   | RES PREC RN55D 8.25 K     | 1            |
| 256010102   | DIODE LED (RED) DIFF LENS | 1            |
| 256443322   | DIODE LED (YELLOW) MV5353 | 1            |
| 256542222   | DIODE LED (GREEN) MV5253  | 1            |
| 402020000   | CONNECTOR CO-AXIAL BNC    | 1            |
| 402020001   | GROUND LUG NONLOCKING BNC | 1            |
| 410312102   | SWITCH TOGGLE 3PDT        | 1            |
| 453110014   | CONN FLAT CABLE PLUG 14   | 2            |
| 455720012   | CONN HOUSING FEM PINS 12  | 1            |
| 455910012   | CONNECTOR COVER 12-POS    | 1            |
| 511103321   | LEFT SIDE FRONT PNL 1033F | 1            |
| 519110002   | BUSHING LED BLK MP 52     | 3            |
| 530429031   | METER LED DISPLAY 3.5 DIG | 1            |
| 530429032   | METER ACCESSORY/BEZEL KIT | 1            |
| 592030014   | CABLE FLAT AWG 28 14-COND | 1            |

End of report. 15 Details encountered.



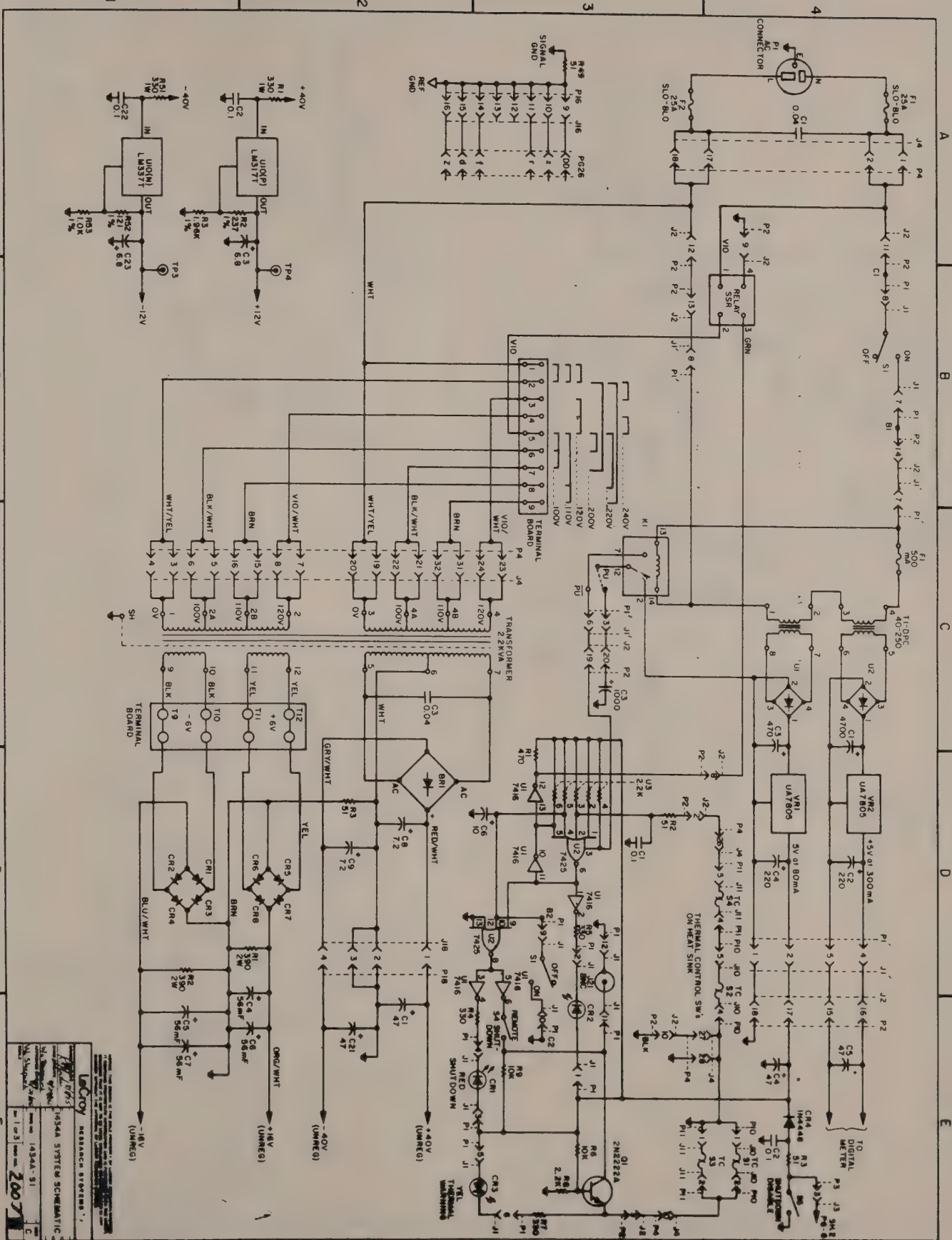
| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 377011017   | LABEL: JUMPERS FOR 1434AF | 1            |
| 389238006   | FOAM PRE-CUT              | 1            |
| 403220026   | CONN FLAT CABLE 26-SOCKET | 1            |
| 405747001   | RECEPTACLE WIRE END SINGL | 12           |
| 405770006   | TERMINAL WIRE END #6      | 7            |
| 405770105   | TERMINAL WIRE END SPADE 6 | 2            |
| 405770106   | TERMINAL WIRE END SPADE 6 | 13           |
| 405834009   | TERM BLOCK DBL ROW 9-POS  | 1            |
| 407011025   | CONNECTOR (PLUG) 25-POS   | 1            |
| 430900425   | RELAY SCR-OUT 280VAC 25A  | 1            |
| 455011002   | CONTACT CRIMP (MALE PIN)  | 6            |
| 455021008   | CONTACT CRIMP (FEM PIN)   | 6            |
| 455210005   | BLOC FOR CRIMP MALE PIN 5 | 2            |
| 455220005   | BLOCK FOR CRIMP FEM PIN 5 | 2            |
| 455310032   | CONN RACK/PANEL MALE 32   | 1            |
| 455720012   | CONN HOUSING FEM PINS 12  | 2            |
| 455720020   | CONN HOUSING FEM PINS 20  | 1            |
| 455910012   | CONNECTOR COVER 12-POS    | 2            |
| 455910020   | CONNECTOR COVER 20-POS    | 1            |
| 511103318   | BACK PLATE FILTER 1033F   | 1            |
| 511103319   | FILTER HOUSING 1033F      | 1            |
| 511103324   | FAN PLATE 1033F           | 1            |
| 511103325   | CONNECTOR PLATE 1033F     | 1            |
| 521400003   | SPACER ROUND #4 3/32      | 4            |
| 530409339   | FAN AXIAL 50/60 HZ 115 V  | 6            |
| 536111001   | KNOB, SKIRTED W/POINTER   | 1            |
| 555430003   | CAPTIVE SCREW ASSEMBLY    | 2            |
| 555482001   | NUT CAP (ACORN) 4-40      | 4            |
| 555632001   | SET SCREW HEX 6-32X3/16   | 1            |
| 560440004   | SCREW PHILIPS 4-40X1/4    | 18           |
| 560440006   | SCREW PHILIPS 4-40X3/8    | 7            |
| 567440004   | SCREW FLAT PHIL 4-40X1/4  | 2            |
| 567632032   | SCREW FLAT PHIL 6-32X2"   | 24           |
| 568632006   | SCREW FLAT PHIL 6-32X3/8  | 14           |
| 568632007   | SCREW FLAT PHIL 6-32X7/16 | 8            |
| 568832010   | SCREW FLAT PHIL 8-32X5/8  | 4            |
| 568832016   | SCREW FLAT PHIL 8-32X1"   | 2            |
| 575410002   | WASHER FLAT SS .250 OD #4 | 8            |
| 575610002   | WASHER FLAT REG OD SIZE 6 | 24           |
| 575810002   | WASHER FLAT REG OD SIZE 8 | 2            |
| 576410001   | WASHER SPLIT LOCK SIZE 4  | 10           |
| 577400001   | WASHER SHAKEPROOF SIZE 4  | 14           |
| 577600001   | WASHER SHAKEPROOF SIZE 6  | 24           |
| 577800001   | WASHER SHAKEPROOF SIZE 8  | 8            |
| 580440001   | NUT HEX STANDARD 4-40     | 8            |
| 580632001   | NUT HEX 6-32              | 24           |
| 580832001   | NUT HEX 8-32              | 8            |
| 590001014   | WIRE TEFLON 19/27 BLK 14  | 1            |
| 590001022   | WIRE TEFLON 7/30 BLK 22   | 8            |
| 590091018   | WIRE TEF 19/13 BLK/WHT 18 | 2            |
| 590091022   | WIRE TEFL 7/30 BLK/WHT 22 | 2            |
| 590111018   | WIRE TEFLON 19/13 BRN 18  | 2            |
| 590111022   | WIRE TEFLON 7/30 BRN 22   | 3            |
| 590221022   | WIRE TEFLON 7/30 RED 22   | 2            |



| PART NUMBER | DESCRIPTION               | QUANTITY PER |
|-------------|---------------------------|--------------|
| 590291022   | WIRE TEFL 7/30 RED/WHT 22 | 2            |
| 590331022   | WIRE TEFLON 7/30 ORA 22   | 3            |
| 590491022   | WIRE TWFL 7/30 YEL/WHT 22 | 9            |
| 590551022   | WIRE TEFLON 7/30 GRN 22   | 2            |
| 590591022   | WIRE TEFL 7/30 GRN/WHT 22 | 6            |
| 590661022   | WIRE TEFLON 7/30 BLU 22   | 2            |
| 590771018   | WIRE TEFLON 19/13 VIO 18  | 1            |
| 590771022   | WIRE TEFLON 7/30 VIO 22   | 3            |
| 590791018   | WIRE TEF 19/13 VIO/WHT 18 | 3            |
| 590881022   | WIRE TEFLON 7/30 GRAY 22  | 2            |
| 590941018   | WIRE TEF 19/13 WHT/YEL 18 | 2            |
| 590991018   | WIRE TEFLON 19/13 WHT 18  | 1            |
| 590991022   | WIRE TEFLON 7/30 WHT 22   | 3            |
| 592030026   | CABLE FLAT AWG 28 26-COND | 3            |
| 594230002   | CABLE CLIP ADHESIVE BACK  | 3            |
| 701034101   | SWITCH ADAPTER SHAFT 1034 | 1            |
| 701034102   | CONN PLATE (FLOATING)1034 | 1            |
| 701034103   | FRONT PANEL (RIGHT) 1034F | 1            |
| 701034104   | CONN MTG BRACKET 1034F    | 1            |
| 701034105   | DEFLECTOR PLATE 1034F     | 1            |
| 751434012   | SHIELD FOR TERMINAL BLOCK | 1            |

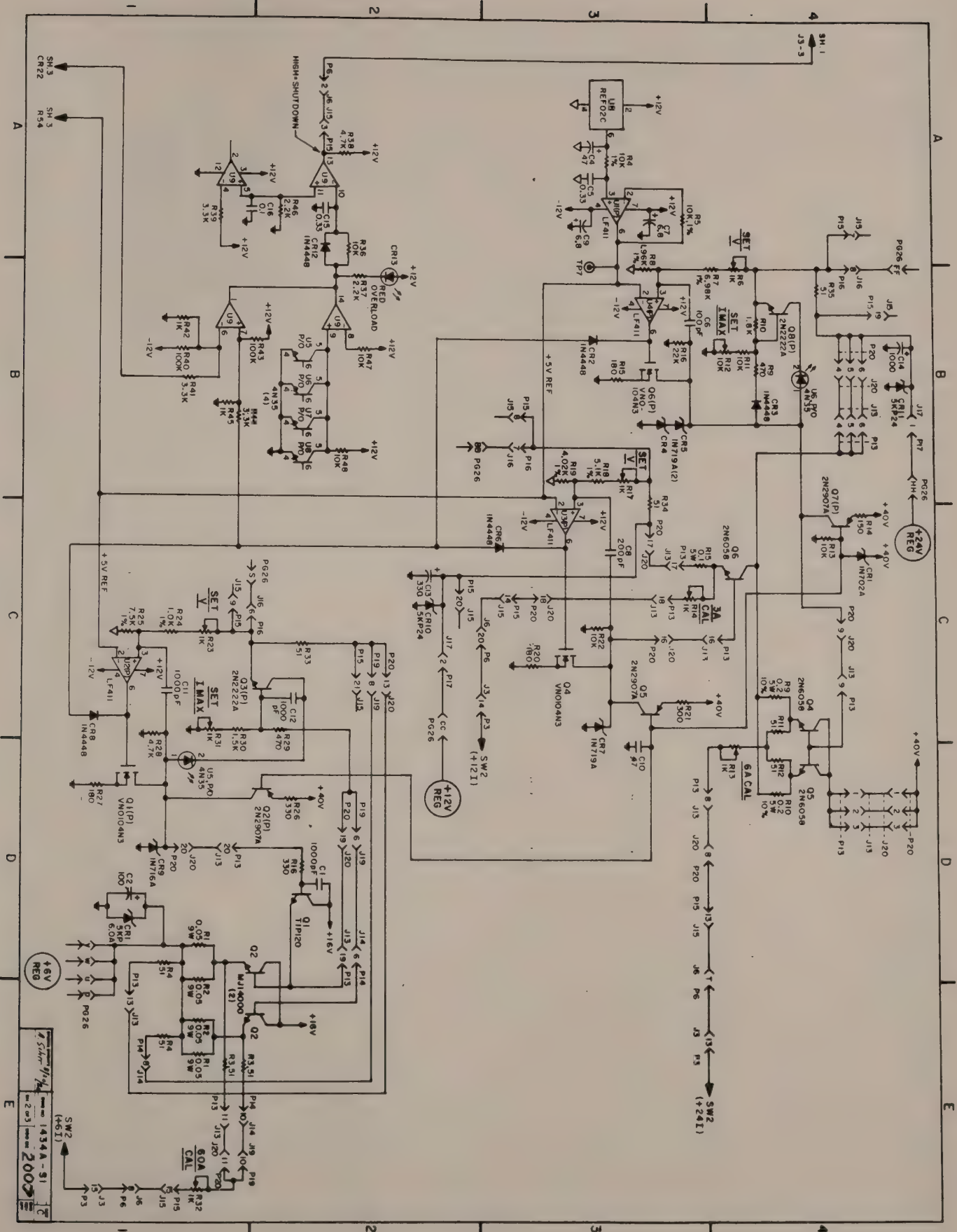
End of report. 75 Details encountered.





IBM 1454A SYSTEM SCHEMATIC  
 1454A-31  
 2007





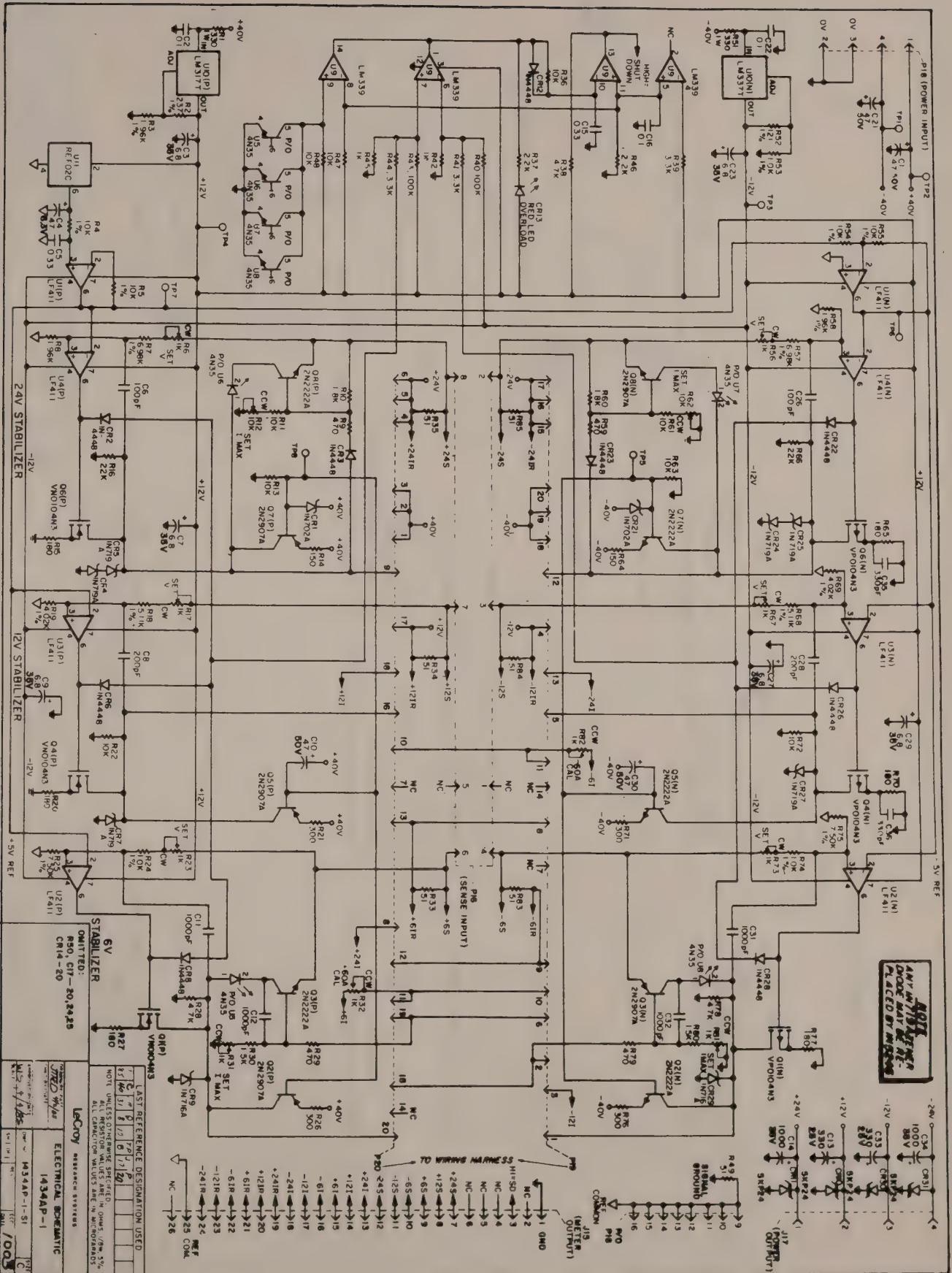




3. THIS SCHEMATIC IS SOLELY INTENDED TO CONVEY THE ELECTRONIC CONCEPT OF THE 1434A. COMPONENT SYMBOLS SHOWN WILL BE REDUNDANT IN SOME INSTANCES. REFER TO THE REFERENCE DRAWINGS LISTED ABOVE TO DIFFERENTIATE ONE COMPONENT FROM ANOTHER.

[illegible]





|                        |                      |
|------------------------|----------------------|
| LEADY research systems |                      |
| MODEL 7442             | ELECTRICAL SCHEMATIC |
| 1434AP-1               |                      |
| DATE: 4/8/66           |                      |
| BY: J. J. J.           |                      |
| CHK: J. J. J.          |                      |
| REV: 1                 |                      |
| 100%                   |                      |

|                                 |    |
|---------------------------------|----|
| LAST REFERENCE DESIGNATION USED |    |
| 1                               | 2  |
| 3                               | 4  |
| 5                               | 6  |
| 7                               | 8  |
| 9                               | 10 |
| 11                              | 12 |
| 13                              | 14 |
| 15                              | 16 |
| 17                              | 18 |
| 19                              | 20 |
| 21                              | 22 |
| 23                              | 24 |
| 25                              | 26 |

NOT: UNLESS OTHERWISE SPECIFIED  
ALL RESISTOR VALUES ARE IN OHMS, 1/2W, 5%  
ALL CAPACITOR VALUES ARE IN MICROFARADS





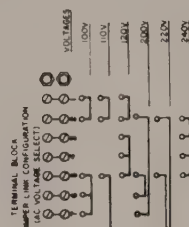
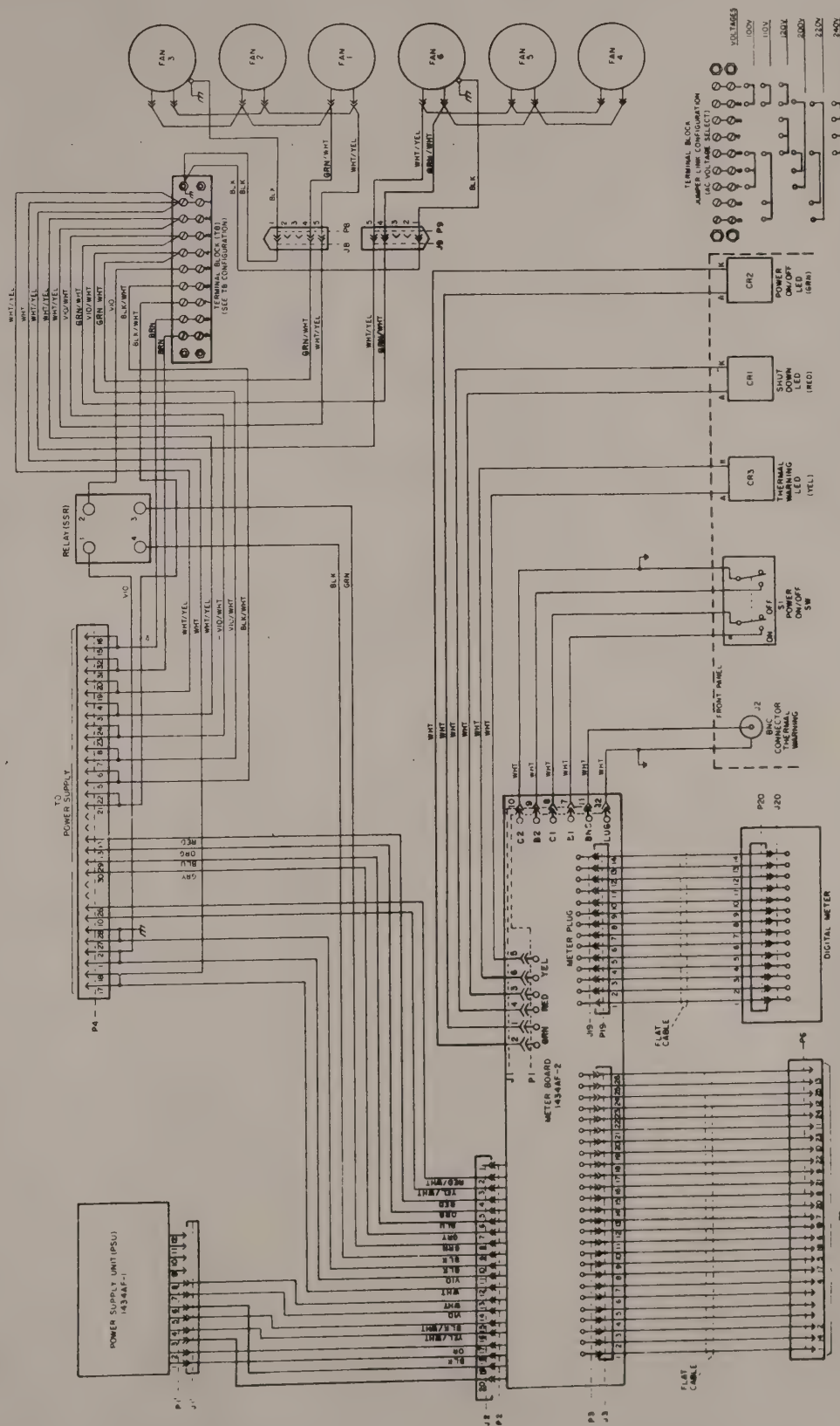


















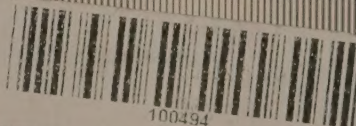


[www.manualsplus.com](http://www.manualsplus.com)



1033793

**LeCroy**



100494